

WHAT IS CLAIMED IS:

1. A thin film magnetic memory device, comprising:
first and second magnetic memory cells provided in a main surface of a semiconductor substrate at a predetermined distance away from each other so as to operate as memory cells;
5 a first wire for applying a magnetic field to the first magnetic memory cell extending in one direction so as to intersect the first magnetic memory cell;
a second wire for applying a magnetic field to the second magnetic memory cell extending in parallel to the first wire so as to intersect the second magnetic memory cell; and
10 a magnetic film provided so as to fill in the space between the first wire and the second wire and so as to bring into contact with the first and second wires.
2. The thin film magnetic memory device according to claim 1, wherein
said first and second wires are provided between the main surface of the semiconductor substrate and said first and second magnetic memory cells.
5
3. The thin film magnetic memory device according to claim 1, wherein
said first and second wires are provided so that said first and second magnetic memory cells are located between the main surface of the semiconductor substrate and said first and second wires.
5
4. The thin film magnetic memory device according to claim 1, wherein
said magnetic film covers said first and second wires so that only the sides of said first and second wires facing said first and second magnetic memory cells are exposed.
5

5. The thin film magnetic memory device according to claim 1,
wherein

said magnetic film extends in the direction in which said first and
second wires extend and said magnetic film extends at least the lengths of
5 the sections wherein regions, in which said first and second magnetic
memory cells, as well as said first and second wires, respectively, intersect
each other, extend in the direction in which said first and second wires
extend.

6. The thin film magnetic memory device according to claim 1,
wherein

said magnetic film includes an oxide of at least one type of element
selected from the group consisting of manganese, zinc and iron.

7. A thin film magnetic memory device comprising:

first and second magnetic memory cells provided in a main surface of
a semiconductor substrate at a predetermined distance away from each
other so as to operate as memory cells;

5 a first wire for applying a magnetic field to the first magnetic
memory cell extending in one direction so as to intersect the first magnetic
memory cell;

10 a second wire for applying a magnetic field to the second magnetic
memory cell extending in parallel to the first wire so as to intersect the
second magnetic memory cell;

15 a magnetic film that fills in the space between the first wire and the
second wire; and

insulator films interposed between said first wire and said magnetic
film as well as between said second wire and said magnetic film,
respectively.

8. The thin film magnetic memory device according to claim 7,
wherein

said first and second wires are provided between the main surface of

the semiconductor substrate and said first and second magnetic memory
5 cells.

9. The thin film magnetic memory device according to claim 7,
wherein

said first and second wires are provided so that said first and second
magnetic memory cells are located between the main surface of the
5 semiconductor substrate and said first and second wires.

10. The thin film magnetic memory device according to claim 7,
wherein

said magnetic film covers said first and second wires so that only the
sides of said first and second wires facing said first and second magnetic
5 memory cells are exposed.

11. The thin film magnetic memory device according to claim 7,
wherein

said magnetic film extends in the direction in which said first and
second wires extend and said magnetic film extends at least the lengths of
5 the sections wherein regions, in which said first and second magnetic
memory cells, as well as said first and second wires, respectively, intersect
each other, extend in the direction in which said first and second wires
extend.

12. The thin film magnetic memory device according to claim 7,
wherein

said magnetic film includes at least one of an alloy of cobalt-iron and
an alloy of nickel-iron.